

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) ~~A~~ The damping device ~~used in a machine comprises~~ according to claim 12, further comprising a rotating object rotating about a rotation axis ~~and~~ a, wherein:

~~the motor rotating rotates~~ said rotating object, which moves the movable object;

~~the damping device comprising:~~

~~a the vibration damper filled with an electroviscous fluid having a viscosity changing according to a value of a voltage applied to the electroviscous fluid, and rotatably supporting supports~~ at least a part of said rotating object in the electroviscous fluid; and

~~a voltage applicator applying the voltage to the electroviscous fluid in said vibration damper; and~~

a the controller controlling an controls the operation of said voltage applicator so that ~~an the~~ optimum voltage, at which the viscosity of the electroviscous fluid absorbing ~~a the~~ vibration of said rotating object most effectively is obtained, can be applied to the electroviscous fluid in said vibration damper in accordance with ~~a the~~ rotating speed of said rotating object.

2. (Currently Amended) ~~A~~ The damping device according to claim 1, further comprising:

~~an a~~ rotating indicator indicating the rotating speed of said rotating object; and

a the memory storing control information representing ~~a~~ relationship between the rotating speed of said rotating object and the optimum voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid absorbing the vibration

of the rotating object most effectively at the rotating speed, obtained in advance, for each expected rotating speed of the rotating object, wherein

when said rotating indicator indicates the rotating speed of said rotating object, said controller indicates said motor to rotate the rotating object at the indicated rotating speed, selects the optimum voltage applied to the electroviscous fluid to correspond to the indicated rotating speed and controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid in said vibration damper.

3. (Currently Amended) ~~A~~ The damping device according to claim 2, wherein said controller selects, from the control information in said memory, the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes lower as an indicated value of the rotating speed of the rotating object indicated by said indicator is higher; and

said controller selects, from the control information in said memory, the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes higher as the indicated value of the rotating speed of the rotating object indicated by said indicator is lower.

4. (Currently Amended) ~~A~~ The damping device according to claim 2, comprising:

a detector detecting the rotating speed of said rotating object at real time, wherein

said controller selects the optimum voltage applied to the electroviscous fluid to correspond to the rotating speed detected by said detector from the control information in said memory, and actively controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid.

5. (Currently Amended) ~~A~~ The damping device according to claim 4, wherein

said controller selects the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes lower as the speed value of the rotating object detected by said detector is higher;

said controller selects the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes higher as the speed value of the rotating object detected by said detector is lower; and

said controller actively controls the operation of said voltage applicator in accordance with the rotating speed detected by said detector.

6. (Currently Amended) A The damping device according to claim 1, wherein said rotating object comprises:

a damping rotation shaft supported in the electroviscous fluid in said vibration damper;

a driving rotation shaft transmitting a driving force from said motor; and

a coupling connecting said damping rotation shaft to said driving rotation shaft, wherein

a rotating force from said driving rotation shaft is surely transmitted to said damping rotation shaft through the coupling, and the coupling absorbs misalignment between the damping rotation shaft and the driving rotation shaft.

7. (Currently Amended) A The damping device ~~used in a feeding device~~ according to claim 12, further comprising:

a rotating object ~~having a male thread formed thereon and rotating about a rotation axis; a axis, wherein the motor rotating rotates~~ said rotating object; ~~and a movable object making a linear motion, the damping device comprising: and~~

a driving coupling section transforming rotating motion of the rotating object into the linear motion, wherein:

~~_____ a vibration damper provided with a female thread fitted into the male thread of said rotating object and transforming a rotating motion of the rotating object into the linear motion, filled with an electroviscous fluid having a viscosity changing in accordance with a value of a voltage applied to the electroviscous fluid, and movably supporting at least a part of said movable object in the electroviscous fluid;~~

~~_____ a voltage applicator applying the voltage to the electroviscous fluid in said vibration damper; and~~

~~_____ a controller controlling an operation of said voltage applicator so that an optimum voltage, at which the viscosity of the electroviscous fluid absorbing a vibration of said movable object most effectively is obtained, can be applied to the electroviscous fluid in said vibration damper in accordance with a moving speed of said movable object.~~

_____ the movable object is provided in the driving coupling section and making a linear motion,

_____ the vibration damper is provided between the driving coupling section and the movable object, and

_____ the movable object makes the linear motion in a state that the movable object is supported in the electroviscous fluid in the vibration damper.

8. (Cancelled)

9. (Currently Amended) A damping device according to claim 87, wherein
said controller selects, from the control information in said memory, the
voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in
said vibration damper becomes higher as an indicated value of the moving speed of the
movable object indicated by said indicator is higher; and

said controller selects, from the control information in said memory, the
voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in

said vibration damper becomes lower as the indicated value of the moving speed of the movable object indicated by said indicator is lower.

10. (Currently Amended) A damping device according to claim 8~~7~~, comprising:
a detector detecting the moving speed of said movable object at real time,
wherein

said controller actively selects the optimum voltage applied to the electroviscous fluid to correspond to the moving speed detected by said detector from the control information in said memory, and controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid.

11. (Original) A damping device according to claim 10, wherein
said controller selects the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes higher as the speed value of the movable object detected by said detector is higher;

said controller selects the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes lower as the speed value of the movable object detected by said detector is lower; and

said controller actively controls the operation of said voltage applicator in accordance with the moving speed detected by said detector.

12. (Currently Amended) A damping device used in a machine ~~comprises a~~
~~moving comprising a movable~~ object and a motor moving said ~~moving movable~~ object,

the damping device comprising:

a vibration damper filled with an electroviscous fluid having a viscosity changing according to a value of a voltage applied to the electroviscous fluid, and movably supporting at least a part of said ~~moving movable~~ object in the electroviscous fluid;

a voltage applicator applying the voltage to the electroviscous fluid in said vibration damper; and

a controller controlling an operation of said voltage applicator so that an optimum voltage, at which the viscosity of the electroviscous fluid absorbing a vibration of said ~~moving~~ movable object most effectively is obtained, can be applied to the electroviscous fluid in said vibration damper in accordance with a moving speed of said ~~moving~~ movable object;

an indicator indicating the moving speed of said movable object; and
a memory storing control information representing a relationship between the moving speed of said movable object and the optimum voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid absorbing the vibration of the movable object most effectively at the moving speed, is obtained in advance, for each expected moving speed of the movable object, wherein:

when said indicator indicates the moving speed of said movable object, said controller indicates said motor to move the movable object at the indicated moving speed, selects the optimum voltage applied to the electroviscous fluid to correspond to the indicated moving speed, and controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid in said vibration damper.